REMARKS

Claims 1 and 3-14 are pending. Claims 1, 3, and 8-14 have been amended. Claim 2 has been cancelled without prejudice or disclaimer. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Entry of this amendment is respectfully requested as no new search is required and it places the application in a condition for allowance or at least in better form for appeal.

Double Patenting

Claims 1, 2, 4, and 6-14 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-8 of co-pending application 09/988,391. As previously indicated, Applicants will file a Terminal Disclaimer once the later of the two pending applications is in otherwise allowable condition.

Claim Rejections under 35 U.S.C. § 103

A. Claims 1-5 and 7-12 were rejected under 35 U.S.C. § 103(a) over Hase et al. (U.S. Patent No. 6,252,648) in view of Somekh (U.S. Patent No. 6,394,109). Applicants respectfully submit that this rejection is moot with respect to claim 2 in view of the cancellation of claim 2 and with respect to claims 9-12 because claims 9-12 have been amended to depend from claim 8 which was not rejected over Hase in view of Somekh. Applicants respectfully traverse this rejection with respect to claims 1 and 3-5.

Claim 1 recites, in part, a lithographic projection apparatus which includes a gas supply constructed and arranged to supply a purge gas to a space in said apparatus wherein the purge gas comprises an inert gas, and wherein the total amount of oxygen-containing species present in the purge gas is from 1 ppb to 10 ppm by volume. In contrast, Hase discloses (column 4, lines 45-50) that oxygen gas is mixed with nitrogen gas and that a valve is opened and closed so that the amount of oxygen is not greater than a few grams per cubic meter. Applicants respectfully submit that "a few grams per cubic meter" is not the same as 1ppb to 10ppm, as claimed.

For example, consider 1 gram of oxygen per cubic meter (i.e., 1 gram of oxygen per 1000 Liters). Since Hase does not disclose a pressure, assume standard temperature and pressure (1 atm) conditions. In this case, 1 mole of any gas occupies 22.4 liters. The definition of parts per million for a gas can also be expressed as a percentage in terms of volume (i.e., 1 ppm is the same as 1 liter per 1,000,000 liters). Accordingly, we calculate the percent by volume of oxygen as follows:

$$\frac{1gram}{1m^3} * \frac{1m^3}{1000Liters} * \frac{1mol}{32grams} * \frac{22.4Liters}{1mol} = 0.0007$$

From the above equation, we obtain that the percent by volume of oxygen is 0.07% or 700ppm. Accordingly, at best, Hase discloses 100 times more oxygen than recited in claim 1. This difference is so great that Hase cannot even be said to disclose the general conditions of the claims as would be required by *In re Aller*. As described on page 11 of the specification of the present application, the concentrations taught by Hase would, at least, lead to unacceptable power loss. Additionally, as recited in claim 5, the space where the purge gas is supplied is substantially evacuated. In this case, a few grams per cubic meter is even further outside of the 1 ppb to 10ppm range, as recited in claim 1. Therefore, Hase does not teach or suggest that the total amount of oxygen-containing species present in the purge gas is from 1 ppb to 10 ppm by volume and Somekh does not remedy the deficiencies of Hase. Accordingly, no combination of Hase and Somekh teach or suggest a lithographic projection apparatus which includes a gas supply constructed and arranged to supply a purge gas to a space in said apparatus wherein the purge gas comprises an inert gas, and wherein the total amount of oxygen-containing species present in the purge gas is from 1 ppb to 10 ppm by volume, as recited in claim 1.

Further, Hase is directed to a cleaning system which uses an inert gas and oxygen in a closed space to clean an organic compound from a lens by producing ozone. For example, Hase solves the problem of ammonium sulfate deposits (column 1, line 48), carbon deposits and other organic deposits (column 1, line 67) by using ozone to remove them. In contrast, Somekh discloses an apparatus for removing carbon from a charged particle beam lithography system. Somekh's charged particle system requires that imaging take place in an extremely low pressure environment as generally understood by one of ordinary skill in the art of particle beam lithography systems. Accordingly, Hase's cleaning system and Somekh's system for removing carbon deposits require different chamber pressures and are directed at removing different deposits. Thus, Somekh's cleaning system cannot be combined with Hase's relatively high-pressure inert gas purge system. Additionally, Somekh does not disclose whether the system could be used to remove other organic deposits or ammonium sulfate deposits. Accordingly, there is no motivation to modify the system of Hase by using the carbon removing cleaning system of Somekh since it would render Hase's device less useful for removing ammonium sulfate deposits, carbon deposits and other organic deposits. The rejection is simply the result of impermissible picking and choosing of various elements,

based solely on Applicant's disclosure as a blueprint. Accordingly, Applicant submits that the rejection is based on impermissible hindsight, not motivation from the references.

Additionally, in response to the Office Action (pages 6 and 7), Applicants did not attack the references individually but rather pointed out the lack of motivation to combine Hase with Somekh, which point was not addressed by the Office Action.

Claims 3-5 are believed allowable for at least the same reasons presented above with respect to claim 1 by virtue of their dependence upon claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a).

B. Claims 6, 8, 9, 13 and 14 were rejected under 35 U.S.C. § 103(a) over Hase in view of Somekh and further in view of Akagawa et al (U.S. Patent No. 6,288,769). Applicants respectfully traverse this rejection.

Claims 8, 13, and 14 are believed allowable for at least the same reasons presented above because claims 8, 13, and 14 each recite that the total amount of oxygen-containing species present is from 1 ppb to 10 ppm by volume. As discussed above, no combination of Hase and Somekh teach or suggest at least the above feature. Additionally, Akagawa, does not remedy the difficencies of the other references because Akagawa does not teach or suggest that the total amount of oxygen-containing species present is from 1 ppb to 10 ppm by volume. Accordingly, no combination of Akagawa, Hase, and Somekh teach or suggest that the total amount of oxygen-containing species present is from 1 ppb to 10 ppm by volume, as recited in claims 8, 13, and 14.

Additionally, as admitted in the Office Action, neither Hase nor Somekh teach cleaning by irradiating the optical component with radiation having a wavelength of less than 250 nm in the presence of an oxygen containing species, as recited in claims 8, 13, and 14. Akagawa, does not teach this feature either. Rather, Akagawa teaches that the contaminating material can be removed by irradiating the illuminating lens unit with ArF light having wavelengths of 185 nm and 254 nm while keeping nitrogen gas flowing (column 9, lines 30-40). Therefore, Akagawa does not teach or suggest cleaning by irradiating the optical component with radiation having a wavelength of less than 250 nm in the presence of an oxygen containing species and Hase and Somekh do not remedy this deficiency. Accordingly, no combination of Hase, Somekh and Akagawa teach or suggest cleaning by irradiating the optical component with radiation having a wavelength of less than 250 nm in the presence of an oxygen containing species, as recited in each of claims 8, 13, and 14.

Claims 6 and 9 are believed allowable for at least the same reasons presented above with respect to claims 1 and 8 by virtue of their dependence upon claims 1 and 8. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a).

Conclusion

In view of the foregoing, the claims are believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Please charge any fees associated with the submission of this paper to Deposit Account Number 03-3975 under Order No. 81468/284105. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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